

# Appendix Report

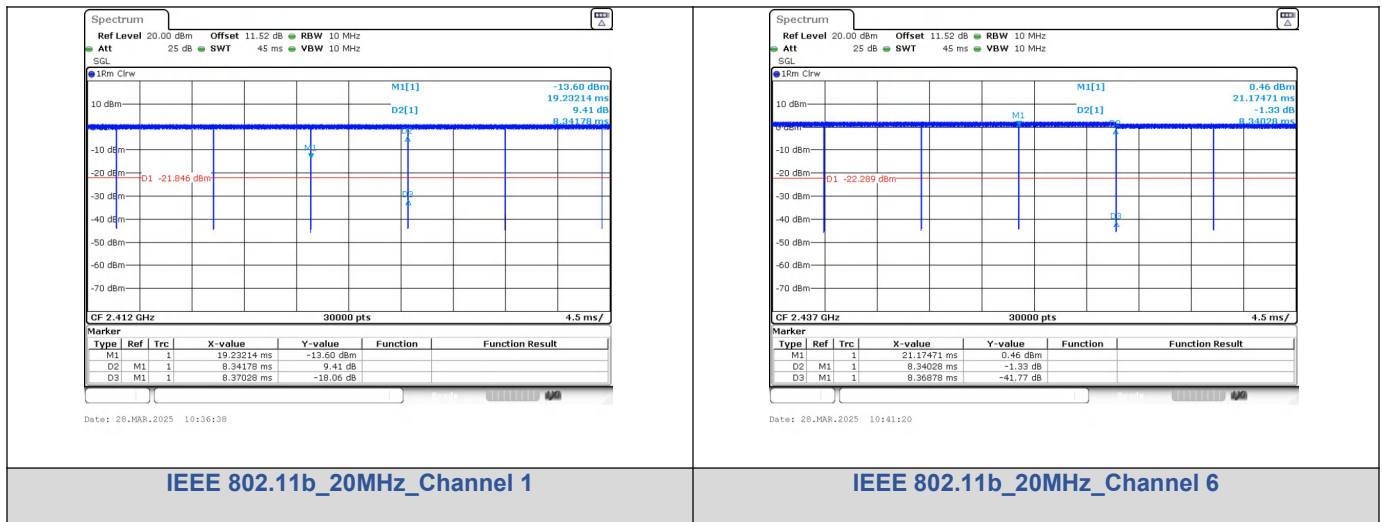
|                |               |
|----------------|---------------|
| Project No.:   | CISR250324201 |
| Test Engineer: | James Wang    |
| Supervised by: | Rory Huang    |

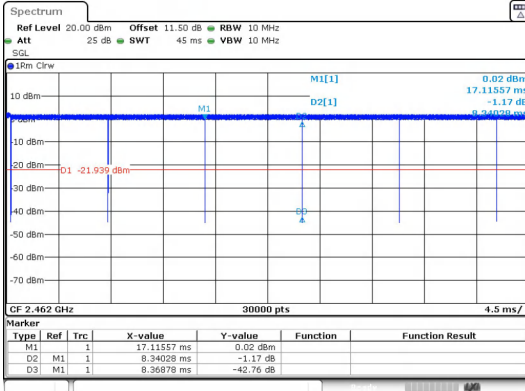
## Duty Cycle

### Test Result

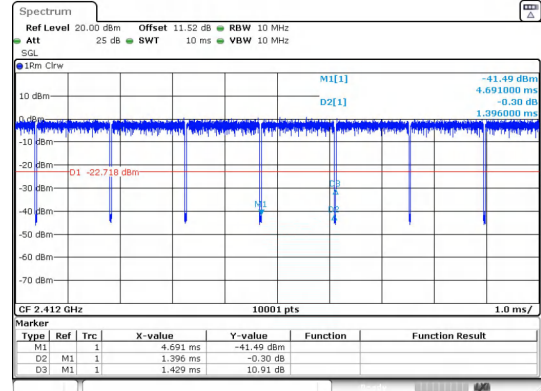
| Mode            | Data rates | Channel | Antenna | On Time (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle (linear) | Duty Cycle Factor (dB) | 1/T    |
|-----------------|------------|---------|---------|--------------|-------------|----------------|---------------------|------------------------|--------|
| IEEE 802.11b    | 1          | 1       | 1       | 8.342        | 8.370       | 99.66          | 0.9966              | 0.0148                 | 0.1199 |
|                 |            | 6       |         | 8.340        | 8.369       | 99.66          | 0.9966              | 0.0148                 | 0.1199 |
|                 |            | 11      |         | 8.340        | 8.369       | 99.66          | 0.9966              | 0.0148                 | 0.1199 |
| IEEE 802.11g    |            | 1       |         | 1.396        | 1.429       | 97.69          | 0.9769              | 0.1015                 | 0.7163 |
|                 |            | 6       |         | 1.396        | 1.430       | 97.62          | 0.9762              | 0.1046                 | 0.7163 |
|                 |            | 11      |         | 1.396        | 1.430       | 97.62          | 0.9762              | 0.1046                 | 0.7163 |
| IEEE 802.11n_20 | MCS 0      | 1       |         | 1.304        | 1.338       | 97.46          | 0.9746              | 0.1117                 | 0.7669 |
|                 |            | 6       |         | 1.292        | 1.326       | 97.44          | 0.9744              | 0.1126                 | 0.7740 |
|                 |            | 11      |         | 1.304        | 1.337       | 97.53          | 0.9753              | 0.1086                 | 0.7669 |
| IEEE 802.11n_40 |            | 3       | 0.650   | 0.684        | 95.00       | 0.9500         | 0.2228              | 1.5385                 |        |
|                 |            | 9       | 0.650   | 0.684        | 95.00       | 0.9500         | 0.2228              | 1.5385                 |        |

### Test Graphs





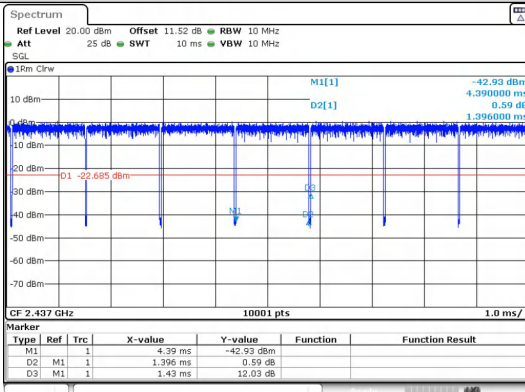
Date: 28.MAR.2025 10:44:14



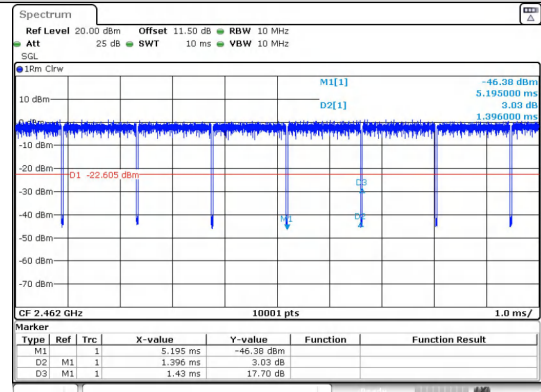
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### IEEE 802.11b\_20MHz\_Channel 11

### IEEE 802.11g\_20MHz\_Channel 1



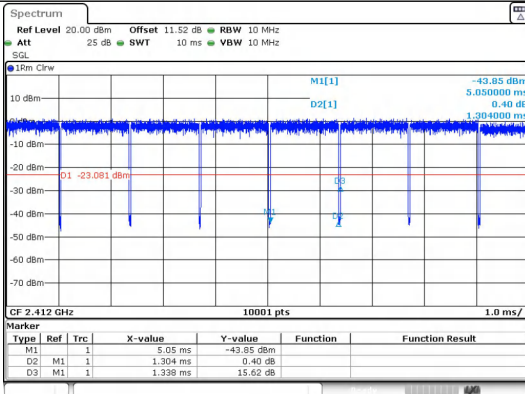
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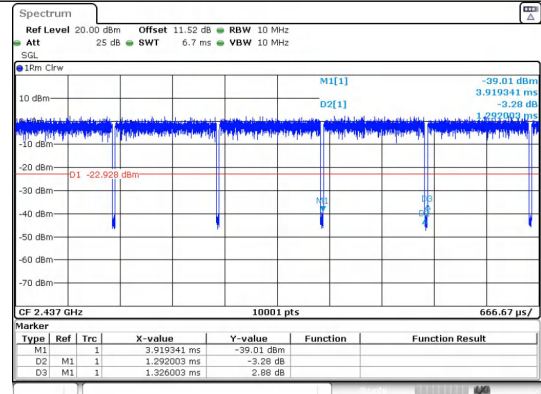
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### IEEE 802.11g\_20MHz\_Channel 6

### IEEE 802.11g\_20MHz\_Channel 11



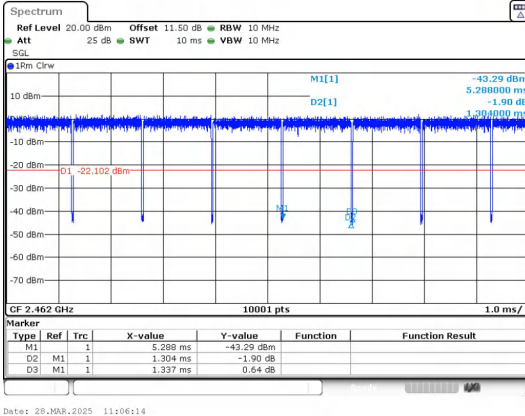
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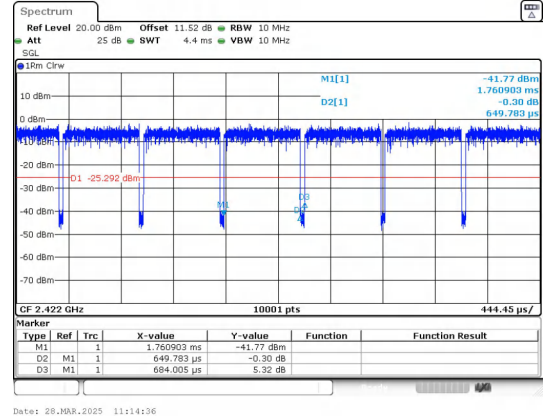
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### IEEE 802.11n\_20MHz\_Channel 1

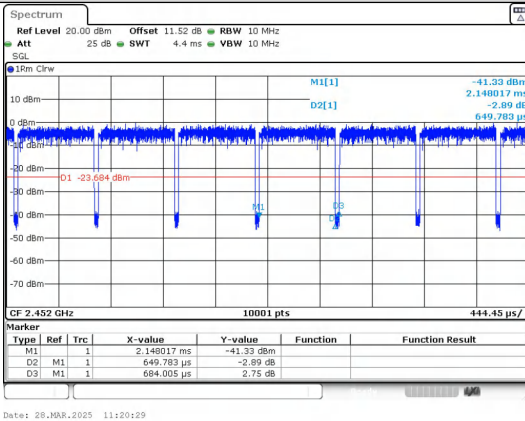
### IEEE 802.11n\_20MHz\_Channel 6



IEEE 802.11n\_20MHz\_Channel 11



IEEE 802.11n\_40MHz\_Channel 3



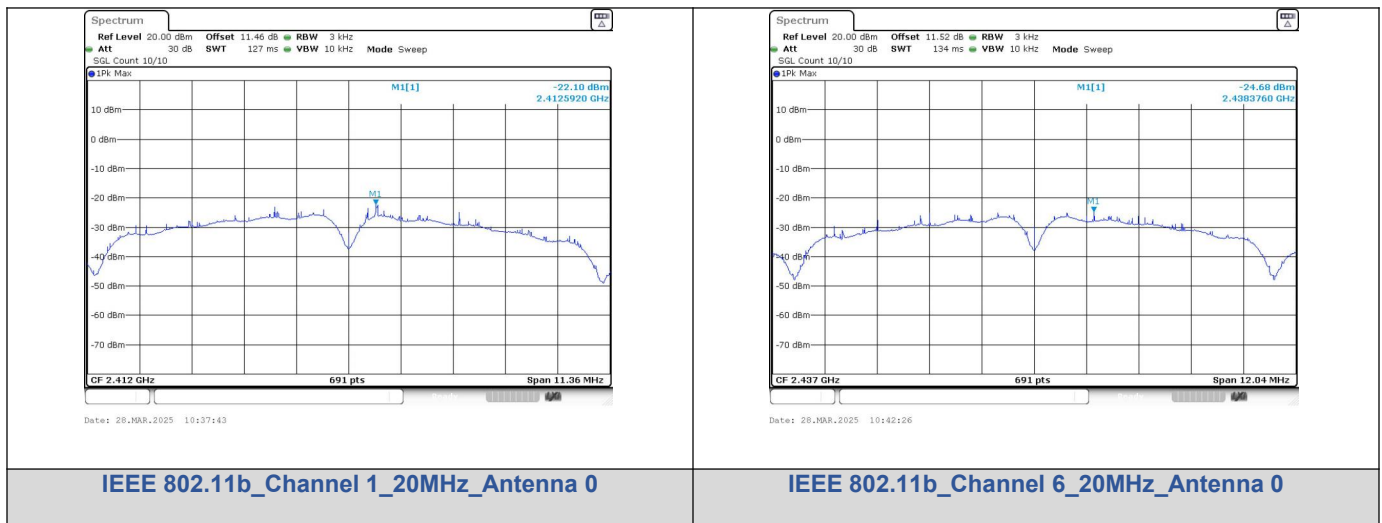
IEEE 802.11n\_40MHz\_Channel 9

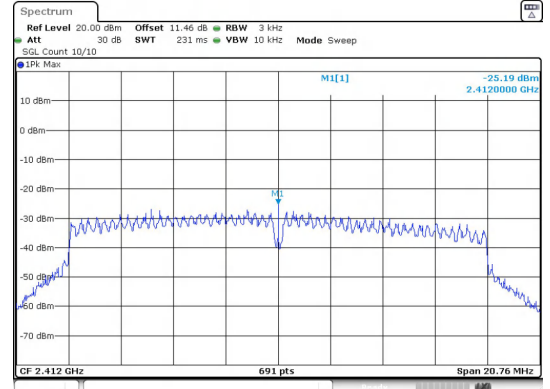
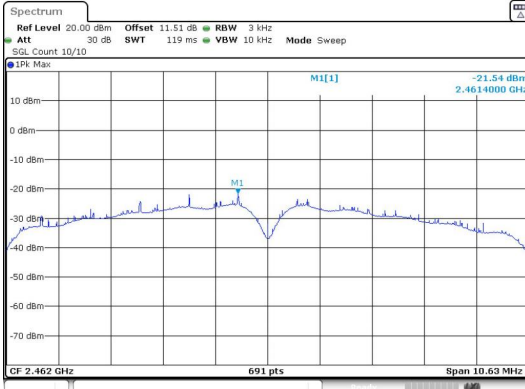
## Power Spectral Density

### Test Result

| Mode            | Channel | PSD<br>(dBm/3kHz)<br>Ant. 0 | Limit<br>(dBm/3kHz) | Result |
|-----------------|---------|-----------------------------|---------------------|--------|
| IEEE 802.11b    | 1       | -22.100                     | ≤8                  | PASS   |
|                 | 6       | -24.680                     |                     | PASS   |
|                 | 11      | -21.540                     |                     | PASS   |
| IEEE 802.11g    | 1       | -25.190                     |                     | PASS   |
|                 | 6       | -26.630                     |                     | PASS   |
|                 | 11      | -26.520                     |                     | PASS   |
| IEEE 802.11n_20 | 1       | -25.080                     |                     | PASS   |
|                 | 6       | -27.410                     |                     | PASS   |
|                 | 11      | -24.970                     |                     | PASS   |
| IEEE 802.11n_40 | 3       | -29.650                     |                     | PASS   |
|                 | 6       | -29.720                     |                     | PASS   |
|                 | 9       | -28.650                     |                     | PASS   |

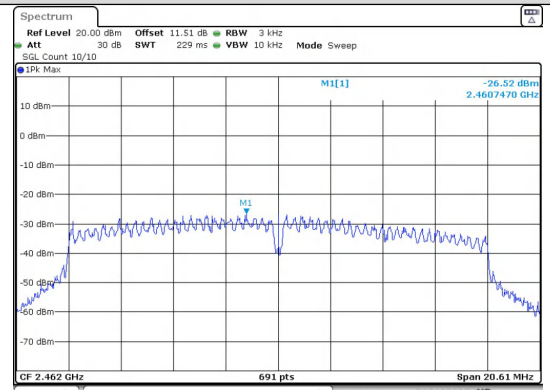
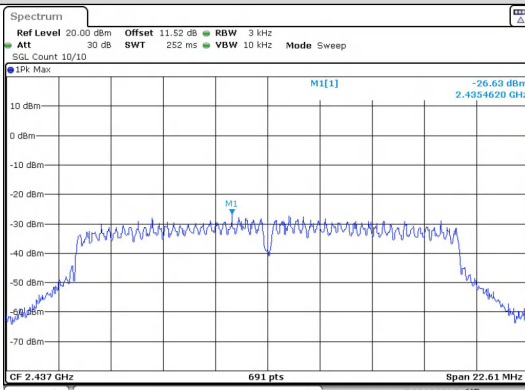
### Test Graphs





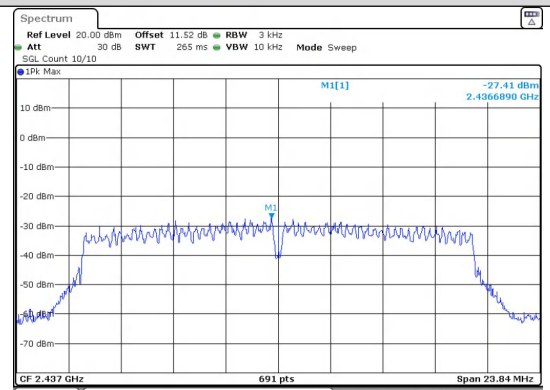
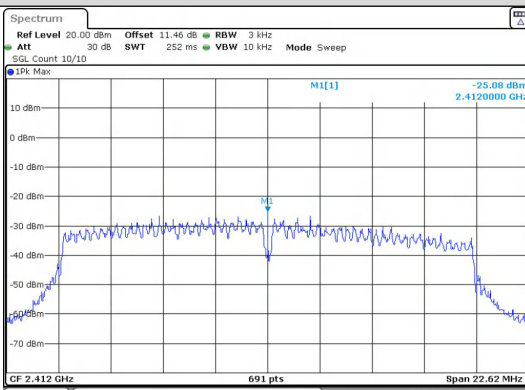
### IEEE 802.11b\_Channel 11\_20MHz\_Antenna 0

### IEEE 802.11g\_Channel 1\_20MHz\_Antenna 0



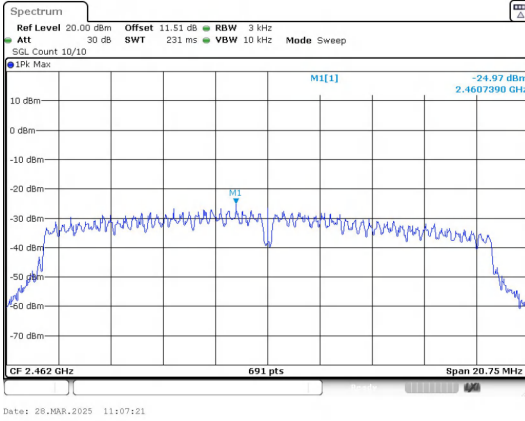
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### IEEE 802.11g\_Channel 11\_20MHz\_Antenna 0

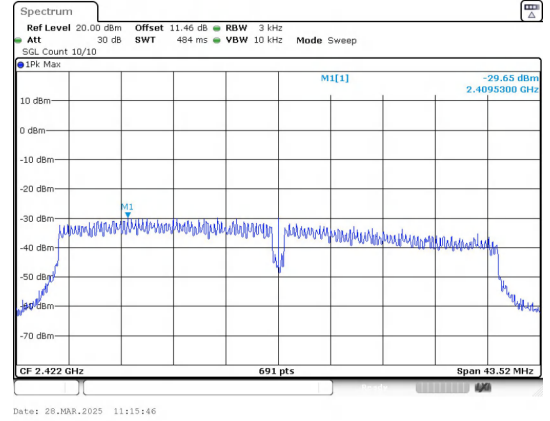


### IEEE 802.11n\_Channel 1\_20MHz\_Antenna 0

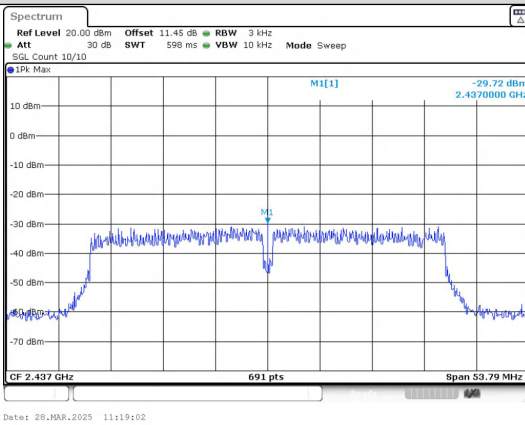
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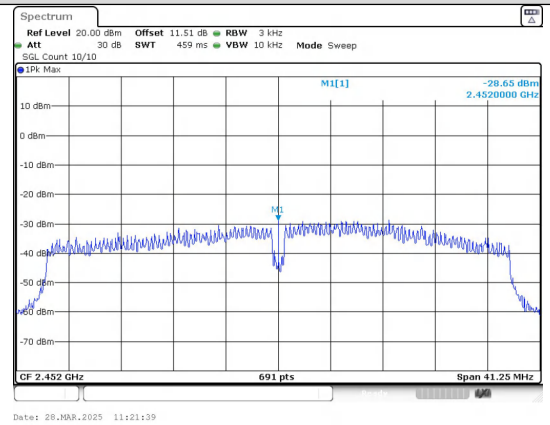
IEEE 802.11n\_Channel 11\_20MHz\_Antenna 0



IEEE 802.11n\_Channel 3\_40MHz\_Antenna 0



IEEE 802.11n\_Channel 6\_40MHz\_Antenna 0



IEEE 802.11n\_Channel 9\_40MHz\_Antenna 0

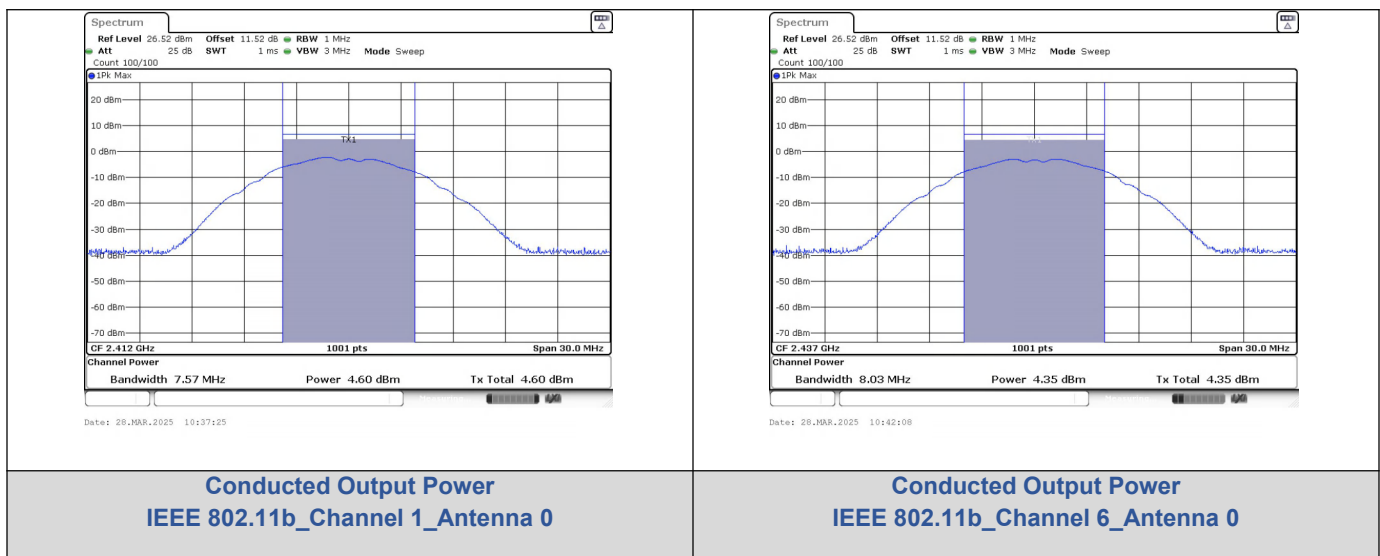
## Conducted Output Power

### Test Result

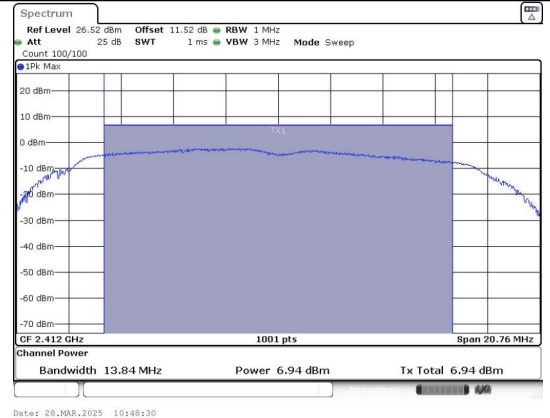
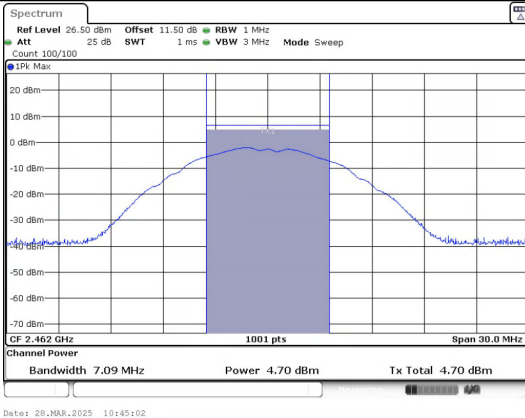
#### Conducted Output Power

| Mode            | Channel | Ant. 0 (dBm) | Limit (dBm) | Result |
|-----------------|---------|--------------|-------------|--------|
| IEEE 802.11b    | 1       | 4.60         | ≤30         | PASS   |
|                 | 6       | 4.35         | ≤30         | PASS   |
|                 | 11      | 4.70         | ≤30         | PASS   |
| IEEE 802.11g    | 1       | 6.94         | ≤30         | PASS   |
|                 | 6       | 6.89         | ≤30         | PASS   |
|                 | 11      | 7.50         | ≤30         | PASS   |
| IEEE 802.11n_20 | 1       | 7.09         | ≤30         | PASS   |
|                 | 6       | 7.02         | ≤30         | PASS   |
|                 | 11      | 7.17         | ≤30         | PASS   |
| IEEE 802.11n_40 | 3       | 6.64         | ≤30         | PASS   |
|                 | 6       | 7.19         | ≤30         | PASS   |
|                 | 9       | 7.05         | ≤30         | PASS   |

### Test Graphs

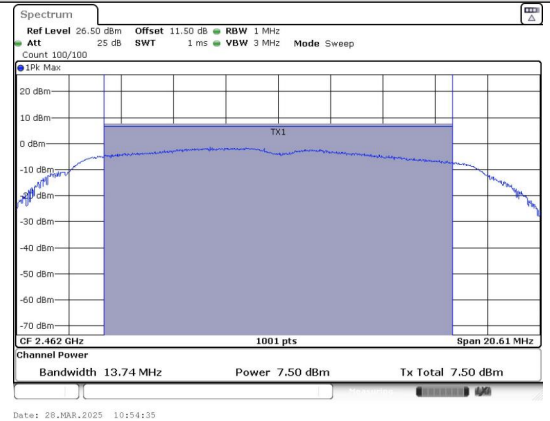
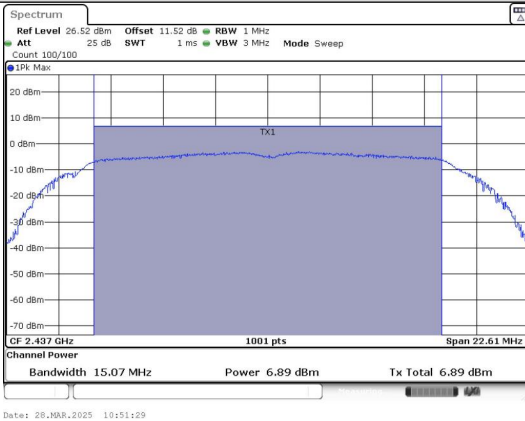






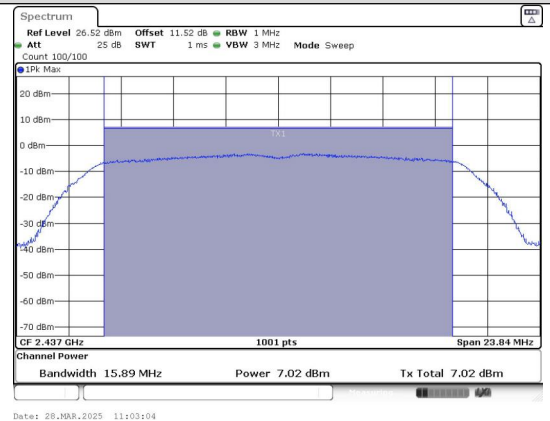
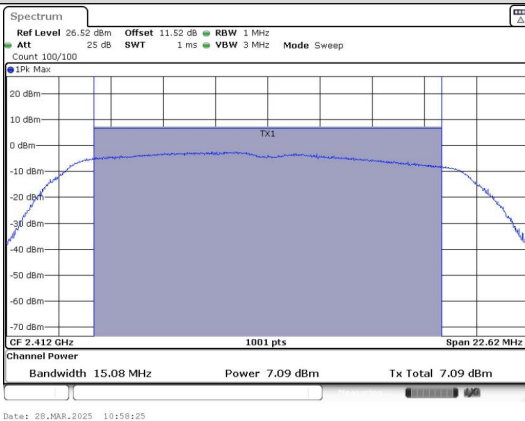
**Conducted Output Power  
IEEE 802.11b\_Channel 11\_Antenna 0**

**Conducted Output Power  
IEEE 802.11g\_Channel 1\_Antenna 0**



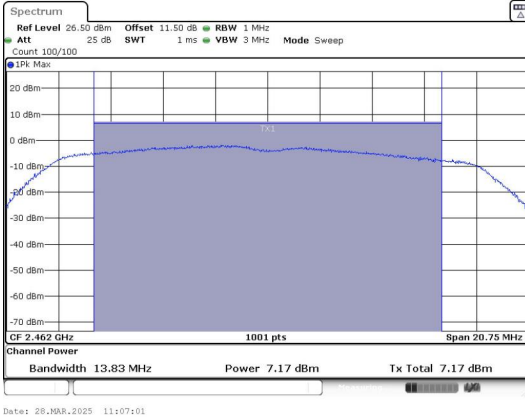
**Conducted Output Power  
IEEE 802.11g\_Channel 6\_Antenna 0**

**Conducted Output Power  
IEEE 802.11g\_Channel 11\_Antenna 0**

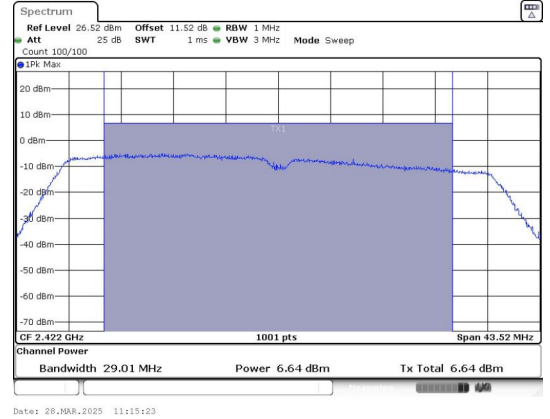


**Conducted Output Power  
IEEE 802.11n\_20\_Channel 1\_Antenna 0**

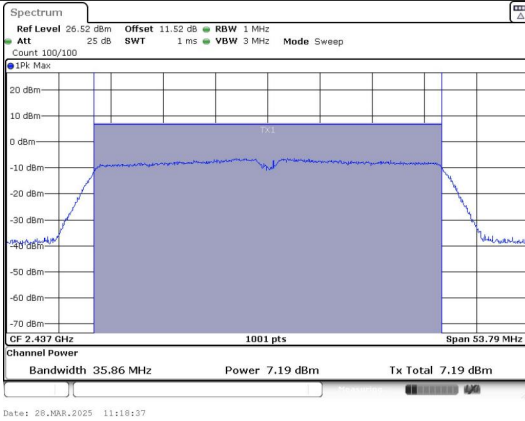
**Conducted Output Power  
IEEE 802.11n\_20\_Channel 6\_Antenna 0**



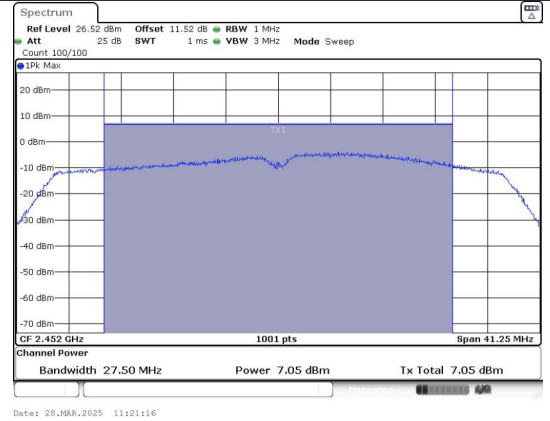
**Conducted Output Power**  
**IEEE 802.11n\_20\_Channel 11\_Antenna 0**



**Conducted Output Power**  
**IEEE 802.11n\_40\_Channel 3\_Antenna 0**



**Conducted Output Power**  
**IEEE 802.11n\_40\_Channel 6\_Antenna 0**



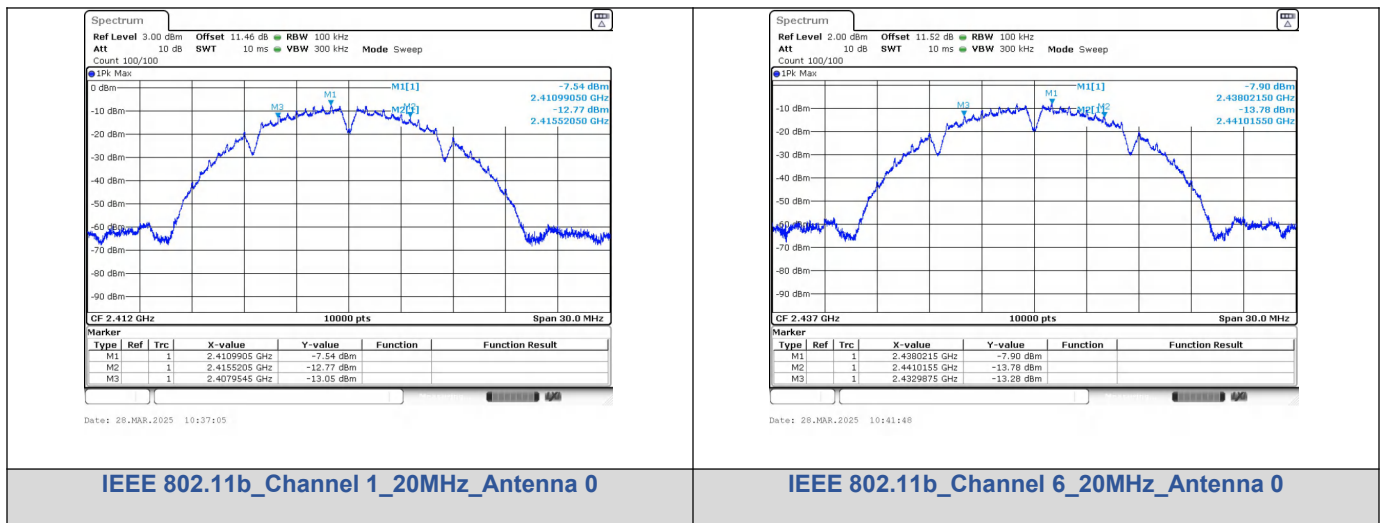
**Conducted Output Power**  
**IEEE 802.11n\_40\_Channel 9\_Antenna 0**

## 6dB Bandwidth

### Test Result

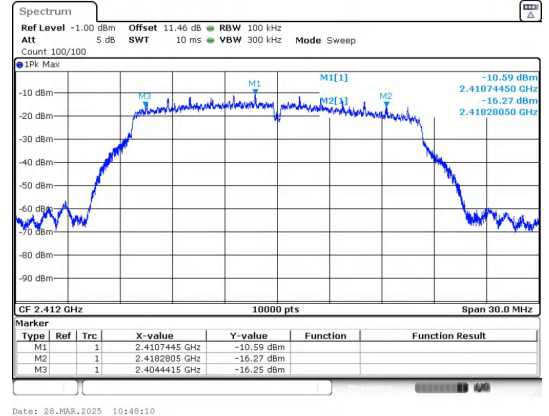
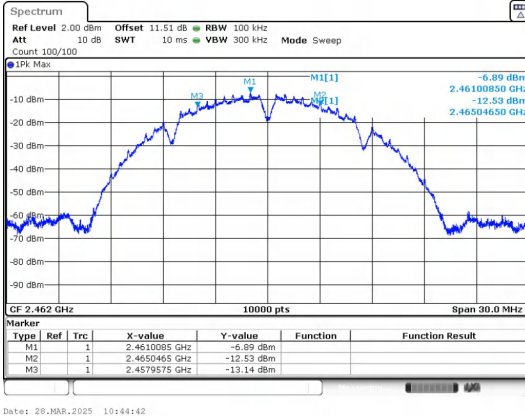
| Mode            | Channel | Ant. | Center Frequency (MHz) | 6 dB Bandwidth (MHz) | Limit (MHz) | Result |
|-----------------|---------|------|------------------------|----------------------|-------------|--------|
| IEEE 802.11b    | 1       | 0    | 2412                   | 7.570                | ≥0.5        | PASS   |
|                 | 6       |      | 2437                   | 8.030                |             | PASS   |
|                 | 11      |      | 2462                   | 7.090                |             | PASS   |
| IEEE 802.11g    | 1       |      | 2412                   | 13.84                |             | PASS   |
|                 | 6       |      | 2437                   | 15.07                |             | PASS   |
|                 | 11      |      | 2462                   | 13.74                |             | PASS   |
| IEEE 802.11n_20 | 1       |      | 2412                   | 15.08                |             | PASS   |
|                 | 6       |      | 2437                   | 15.89                |             | PASS   |
|                 | 11      |      | 2462                   | 13.83                |             | PASS   |
| IEEE 802.11n_40 | 3       |      | 2422                   | 29.01                |             | PASS   |
|                 | 6       |      | 2437                   | 35.86                |             | PASS   |
|                 | 9       |      | 2452                   | 27.50                |             | PASS   |

### Test Graphs

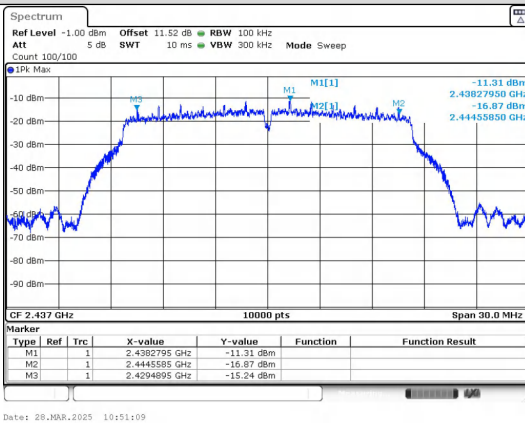


IEEE 802.11b\_Channel 1\_20MHz\_Antenna 0

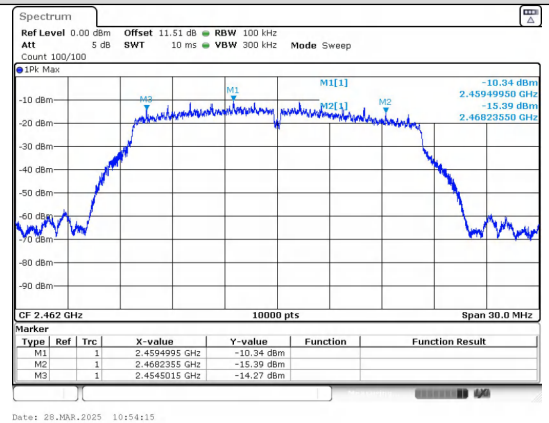
IEEE 802.11b\_Channel 6\_20MHz\_Antenna 0



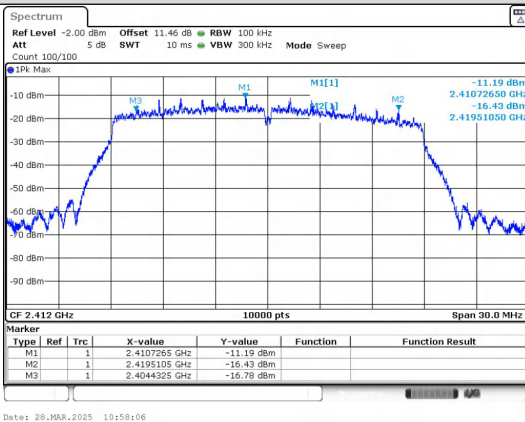
### IEEE 802.11b\_Channel 11\_20MHz\_Antenna 0



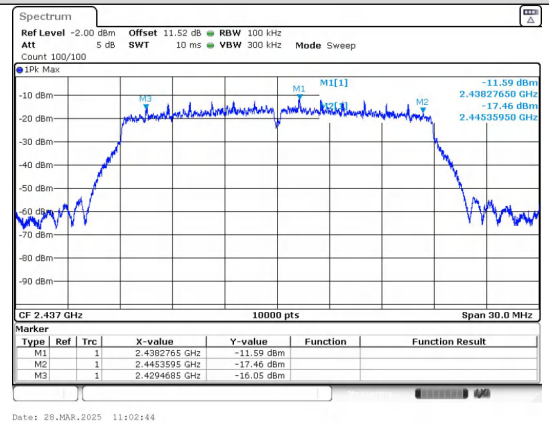
### IEEE 802.11g\_Channel 1\_20MHz\_Antenna 0



### IEEE 802.11g\_Channel 6\_20MHz\_Antenna 0

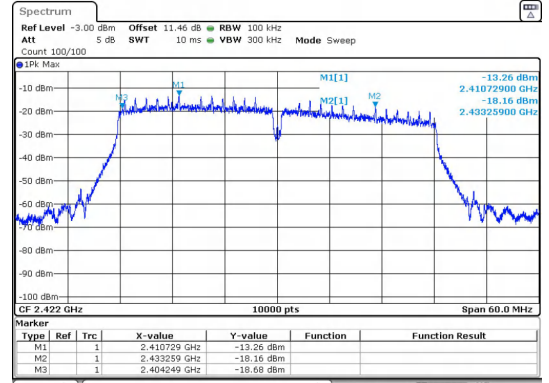
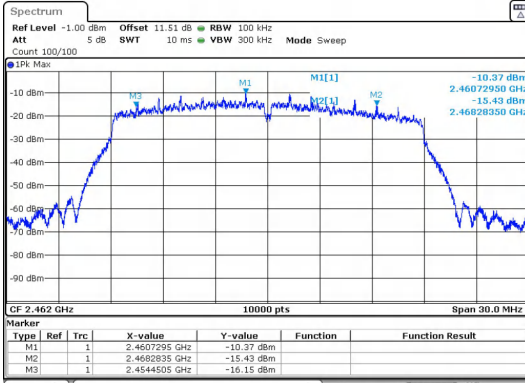


### IEEE 802.11g\_Channel 11\_20MHz\_Antenna 0



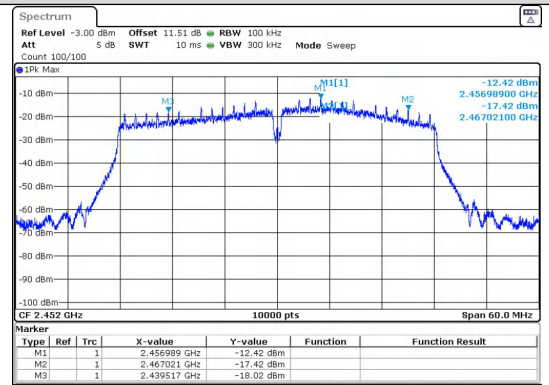
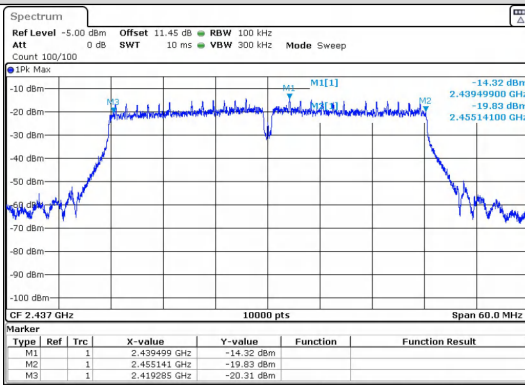
### IEEE 802.11n\_Channel 1\_20MHz\_Antenna 0

### IEEE 802.11n\_Channel 6\_20MHz\_Antenna 0



### IEEE 802.11n\_Channel 11\_20MHz\_Antenna 0

### IEEE 802.11n\_Channel 3\_40MHz\_Antenna 0



### IEEE 802.11n\_Channel 6\_40MHz\_Antenna 0

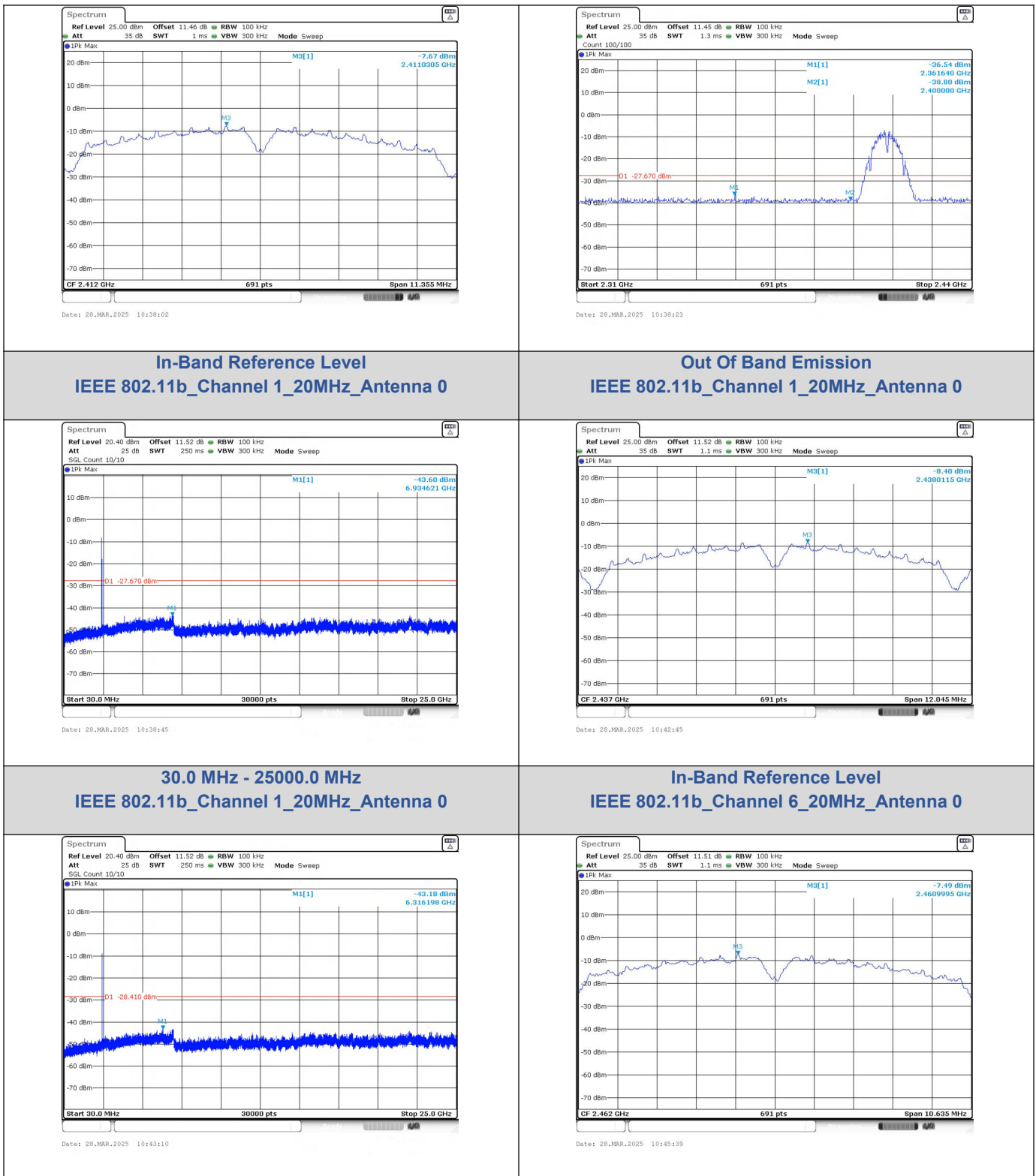
### IEEE 802.11n\_Channel 9\_40MHz\_Antenna 0

## Conducted Out Of Band Emission

### Test Result

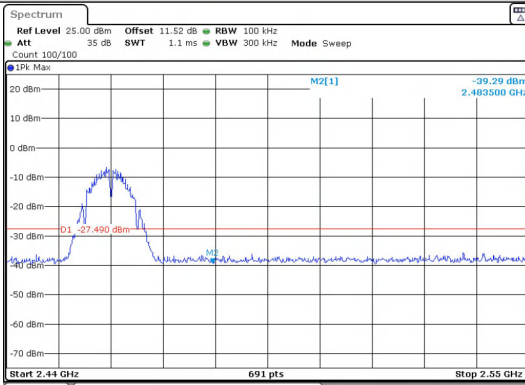
| Mode               | Channel | Ant. | OOB<br>Emission<br>Frequency<br>(MHz) | OOB<br>Emission<br>Level<br>(dBm) | Limit<br>(dBm) | Over Limit<br>(dB) | Result |
|--------------------|---------|------|---------------------------------------|-----------------------------------|----------------|--------------------|--------|
| IEEE<br>802.11b    | 1       | 0    | 2361.64                               | -36.544                           | -27.67         | -8.874             | PASS   |
|                    |         |      | 2400.00                               | -38.800                           | -27.67         | -11.130            | PASS   |
|                    |         |      | 6934.60                               | -43.602                           | -27.67         | -15.932            | PASS   |
|                    | 6       |      | 6316.20                               | -43.177                           | -28.41         | -14.767            | PASS   |
|                    | 11      |      | 2483.50                               | -39.290                           | -27.49         | -11.800            | PASS   |
|                    |         |      | 6894.67                               | -43.455                           | -27.49         | -15.965            | PASS   |
| IEEE<br>802.11g    | 1       |      | 2312.92                               | -37.000                           | -31.4          | -5.600             | PASS   |
|                    |         |      | 2400.00                               | -39.140                           | -31.4          | -7.740             | PASS   |
|                    |         |      | 22055.6                               | -43.383                           | -31.4          | -11.983            | PASS   |
|                    | 6       |      | 6285.40                               | -43.298                           | -31.86         | -11.438            | PASS   |
|                    | 11      |      | 2483.50                               | -38.770                           | -30.21         | -8.560             | PASS   |
|                    |         |      | 22102.2                               | -43.358                           | -30.21         | -13.148            | PASS   |
| IEEE<br>802.11n_20 | 1       |      | 2340.01                               | -36.605                           | -30.57         | -6.035             | PASS   |
|                    |         |      | 2400.00                               | -39.370                           | -30.57         | -8.800             | PASS   |
|                    |         |      | 6254.60                               | -43.531                           | -30.57         | -12.961            | PASS   |
|                    | 6       |      | 23970.8                               | -42.738                           | -31.19         | -11.548            | PASS   |
|                    | 11      |      | 2483.50                               | -37.970                           | -30.35         | -7.620             | PASS   |
|                    |         |      | 22646.6                               | -43.329                           | -30.35         | -12.979            | PASS   |
| IEEE<br>802.11n_40 | 3       |      | 2393.44                               | -36.718                           | -33.97         | -2.748             | PASS   |
|                    |         |      | 2400.00                               | -39.960                           | -33.97         | -5.990             | PASS   |
|                    |         |      | 6276.20                               | -43.173                           | -33.97         | -9.203             | PASS   |
|                    | 6       |      | 6116.44                               | -42.874                           | -33.84         | -9.034             | PASS   |
|                    | 9       |      | 2483.50                               | -37.700                           | -32.17         | -5.530             | PASS   |
|                    |         |      | 6990.39                               | -43.145                           | -32.17         | -10.975            | PASS   |

## Test Graphs



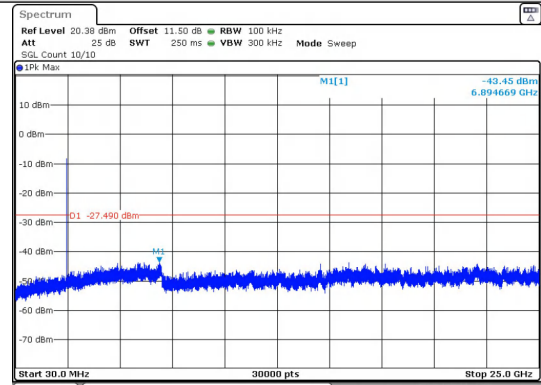


**30.0 MHz - 25000.0 MHz**  
**IEEE 802.11b\_Channel 6\_20MHz\_Antenna 0**



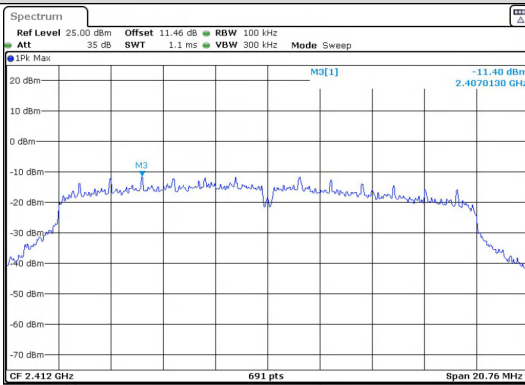
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**In-Band Reference Level**  
**IEEE 802.11b\_Channel 11\_20MHz\_Antenna 0**



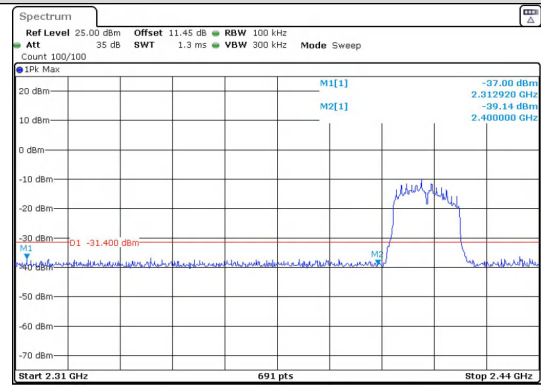
Date: 28.MAR.2025 10:46:21

**Out Of Band Emission**  
**IEEE 802.11b\_Channel 11\_20MHz\_Antenna 0**



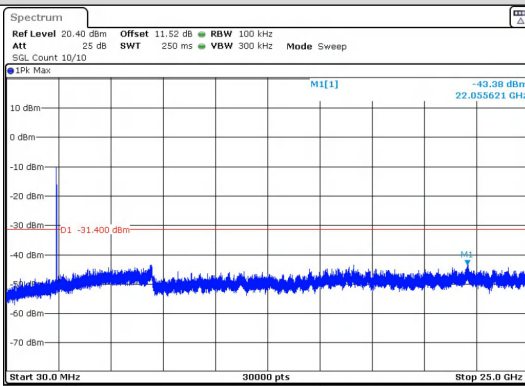
Date: 28.MAR.2025 10:49:08

**30.0 MHz - 25000.0 MHz**  
**IEEE 802.11b\_Channel 11\_20MHz\_Antenna 0**



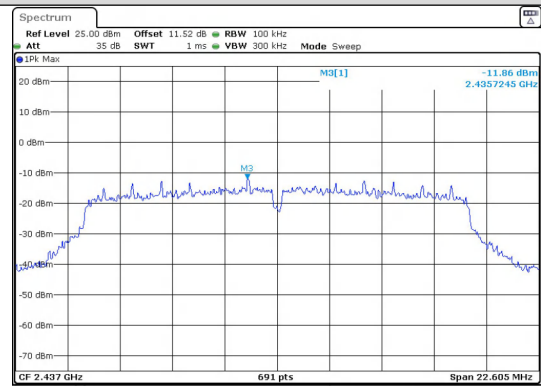
Date: 28.MAR.2025 10:49:28

**In-Band Reference Level**  
**IEEE 802.11g\_Channel 1\_20MHz\_Antenna 0**



Date: 28.MAR.2025 10:49:51

**Out Of Band Emission**  
**IEEE 802.11g\_Channel 1\_20MHz\_Antenna 0**



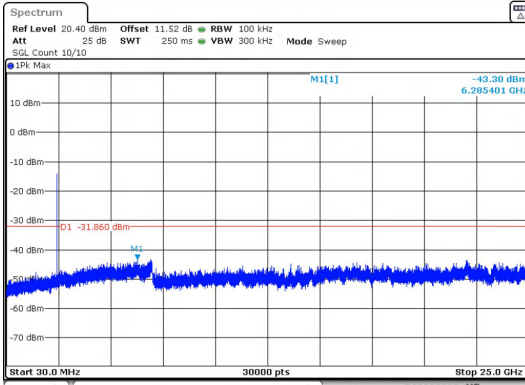
Date: 28.MAR.2025 10:52:08

**30.0 MHz - 25000.0 MHz**

**In-Band Reference Level**

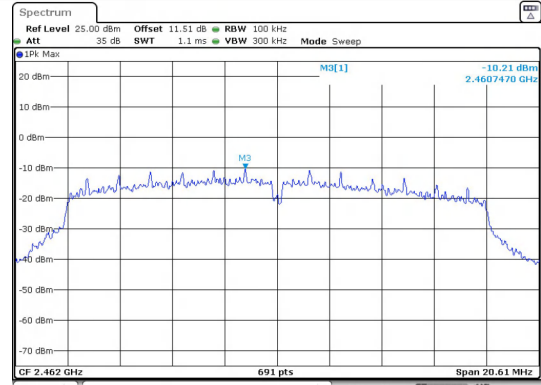


### IEEE 802.11g\_Channel 1\_20MHz\_Antenna 0



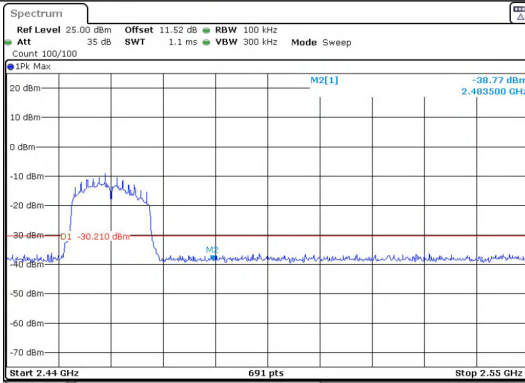
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### IEEE 802.11g\_Channel 6\_20MHz\_Antenna 0



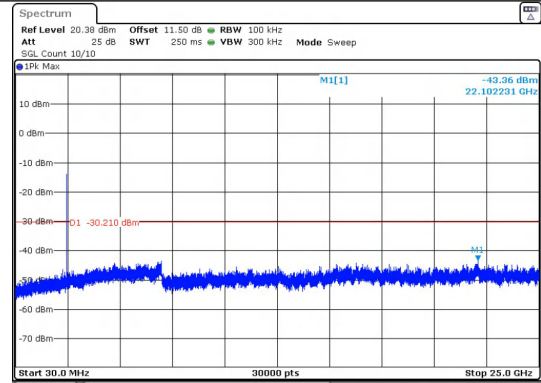
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### 30.0 MHz - 25000.0 MHz IEEE 802.11g\_Channel 6\_20MHz\_Antenna 0



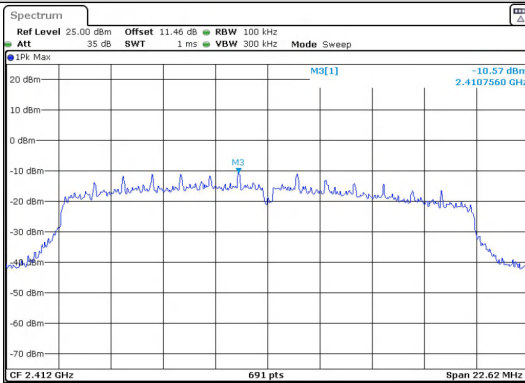
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### In-Band Reference Level IEEE 802.11g\_Channel 11\_20MHz\_Antenna 0



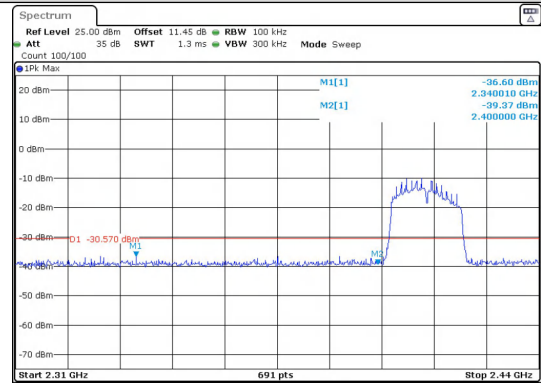
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### Out Of Band Emission IEEE 802.11g\_Channel 11\_20MHz\_Antenna 0



Date: 28.MAR.2025 10:59:04

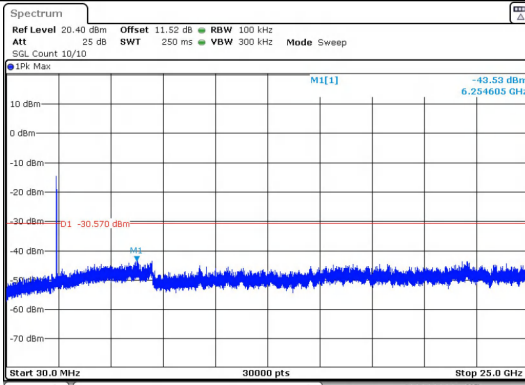
### 30.0 MHz - 25000.0 MHz IEEE 802.11g\_Channel 11\_20MHz\_Antenna 0



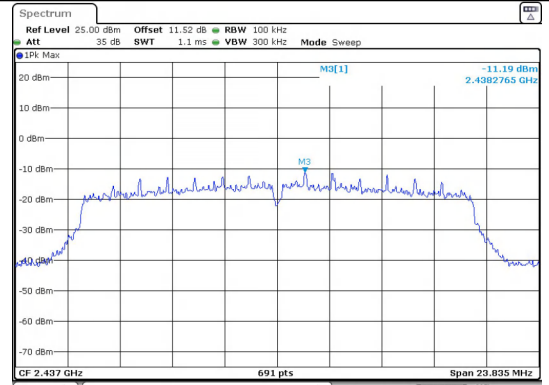
Date: 28.MAR.2025 10:59:24

### In-Band Reference Level IEEE 802.11n\_Channel 1\_20MHz\_Antenna 0

### Out Of Band Emission IEEE 802.11n\_Channel 1\_20MHz\_Antenna 0



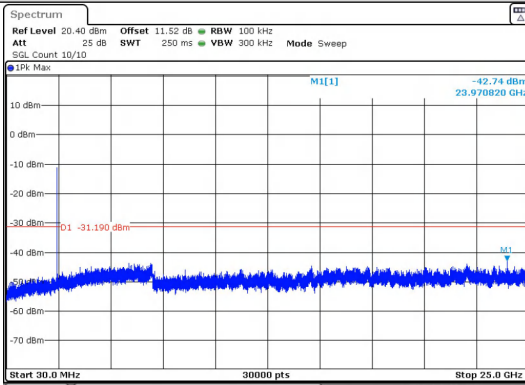
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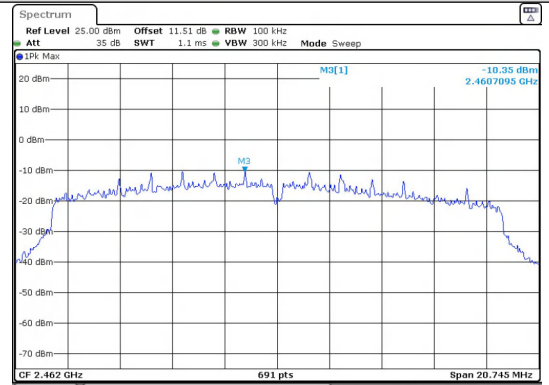
Date: 28.MAR.2025 11:03:43

**30.0 MHz - 25000.0 MHz**  
**IEEE 802.11n\_Channel 1\_20MHz\_Antenna 0**

**In-Band Reference Level**  
**IEEE 802.11n\_Channel 6\_20MHz\_Antenna 0**



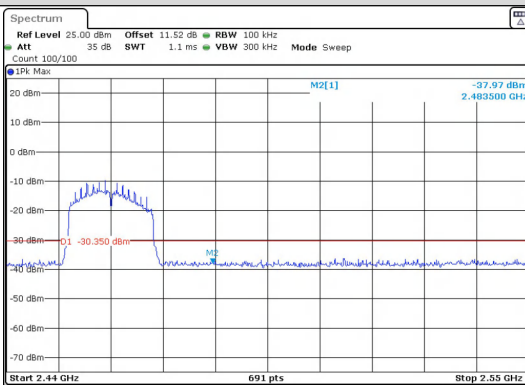
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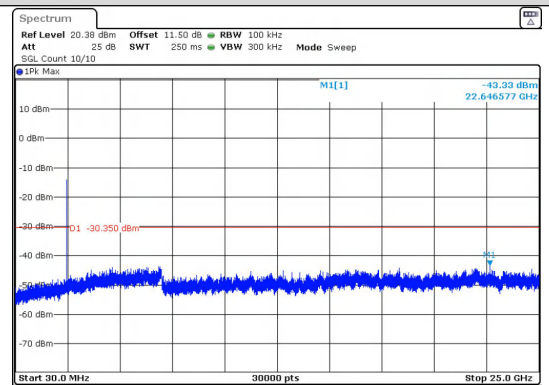
Date: 28.MAR.2025 11:07:40

**30.0 MHz - 25000.0 MHz**  
**IEEE 802.11n\_Channel 6\_20MHz\_Antenna 0**

**In-Band Reference Level**  
**IEEE 802.11n\_Channel 11\_20MHz\_Antenna 0**



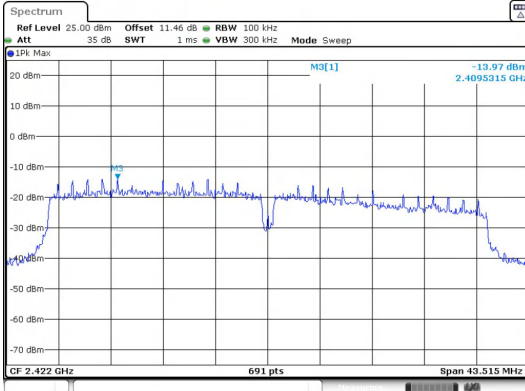
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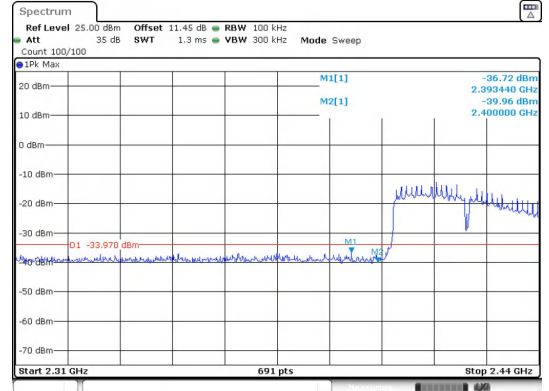
Date: 28.MAR.2025 11:08:23

**Out Of Band Emission**  
**IEEE 802.11n\_Channel 11\_20MHz\_Antenna 0**

**30.0 MHz - 25000.0 MHz**  
**IEEE 802.11n\_Channel 11\_20MHz\_Antenna 0**



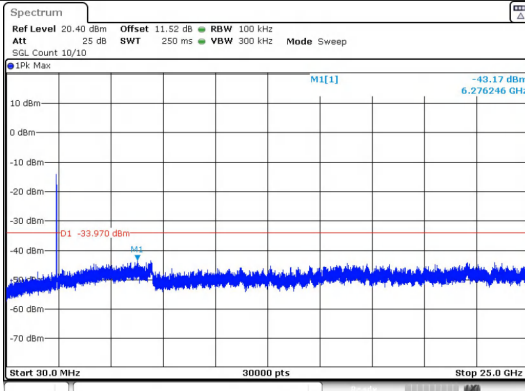
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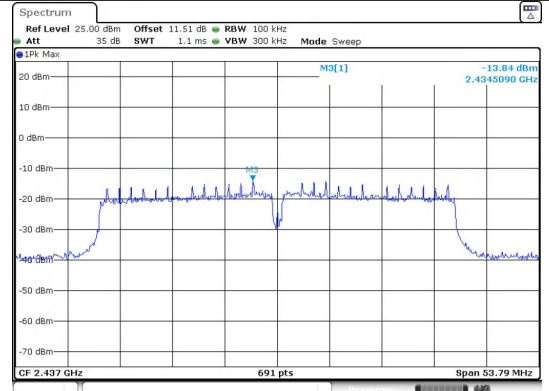
Date: 28.MAR.2025 11:16:25

### In-Band Reference Level IEEE 802.11n\_Channel 3\_40MHz\_Antenna 0

### Out Of Band Emission IEEE 802.11n\_Channel 3\_40MHz\_Antenna 0



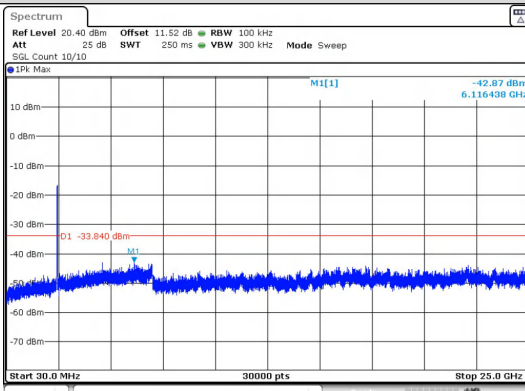
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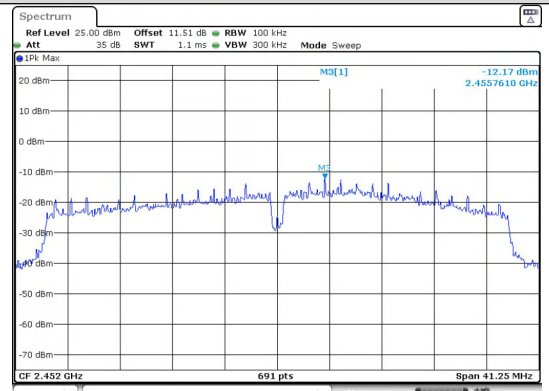
Date: 28.MAR.2025 11:19:21

### 30.0 MHz - 25000.0 MHz IEEE 802.11n\_Channel 3\_40MHz\_Antenna 0

### In-Band Reference Level IEEE 802.11n\_Channel 6\_40MHz\_Antenna 0



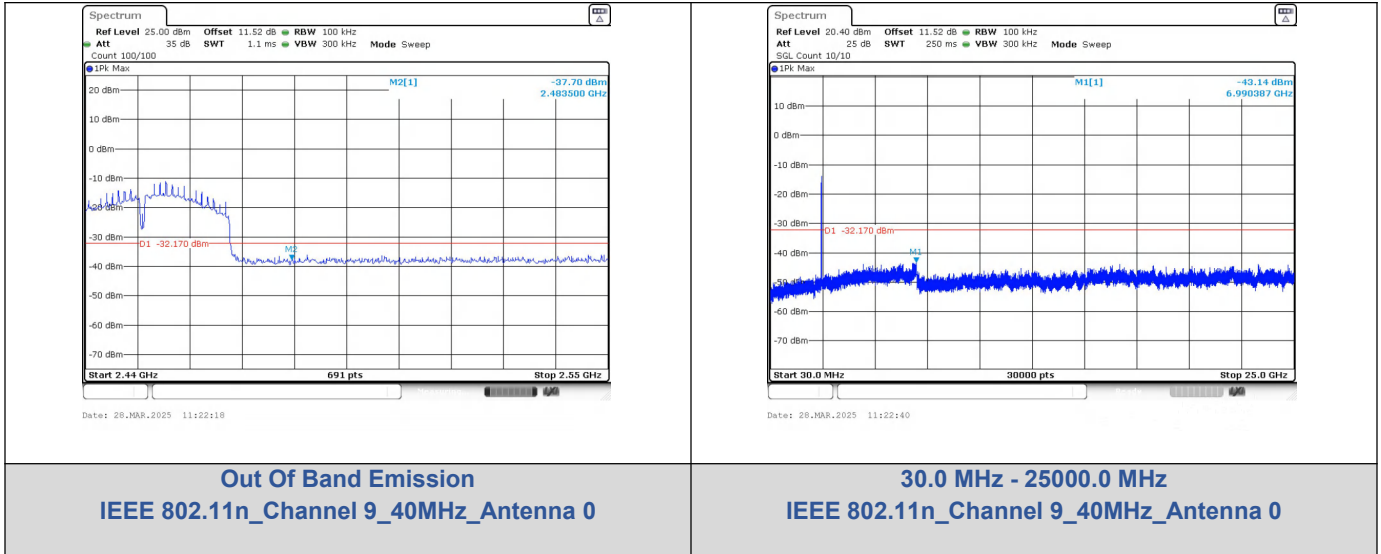
Date: 28.MAR.2025 11:19:46



Date: 28.MAR.2025 11:21:58

### 30.0 MHz - 25000.0 MHz IEEE 802.11n\_Channel 6\_40MHz\_Antenna 0

### In-Band Reference Level IEEE 802.11n\_Channel 9\_40MHz\_Antenna 0



-----End of the report-----